

AMENDMENT TO THE CLAIMS

1. (currently amended): A method for automated focusing of ~~an electron image in an~~
electron imaging system, the method comprising:

~~determining~~ monitoring an energy filter cut-off voltage during electron imaging
of a substrate; and

~~adjusting a focusing condition of an~~ a stage bias voltage of the electron imaging
system ~~based on a change in~~ in negative correspondence with the energy-filter cut-off
voltage so as to maintain a focus of the electron image.

2. (currently amended): The method of claim 1, ~~further comprising:~~

~~varying an energy filter voltage to different levels;~~

~~measuring an intensity of detected electrons at each of the different levels; and~~

~~analyzing the intensity data so as to determine the energy filter cut-off voltage.~~

wherein, in order to maintain the focus of the electron image, the stage bias
voltage is increased when the energy-filter cut-off voltage decreases, and the stage bias
voltage is decreased when the energy-filter cut-off voltage increases.

3. (currently amended): The method of claim 1, ~~wherein the focusing condition~~
~~comprises a wafer bias voltage, and wherein the wafer bias voltage is varied in~~
~~correspondence to the change in the energy filter cut-off voltage.~~ wherein, in order to
maintain the focus of the electron image, the stage bias voltage is increased by a same
voltage amount as the energy-filter cut-off voltage decreases, and the stage bias voltage is
decreased by a same voltage amount as the energy-filter cut-off voltage increases.

4. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises an objective lens focusing strength~~ wherein, instead of adjusting the stage bias voltage, a strength of an objective lens is adjusted.

5. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises an extraction field strength~~ wherein, instead of adjusting the stage bias voltage, a strength of an extraction field is adjusted.

6. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises a source voltage level~~ wherein, instead of adjusting the stage bias voltage, a strength of a source voltage level is adjusted.

7. (currently amended): The method of claim 1, wherein said adjusting provides for rough focusing of the electron image, and further comprising using a contrast-based focusing procedure for fine focusing of the electron image.

8. (canceled):

9. (canceled):

10. (canceled):

11. (currently amended): A electron beam inspection apparatus, the apparatus including an autofocusing means that comprises:

means for ~~determining~~ monitoring an energy filter cut-off voltage during electron imaging of a substrate; and

means for adjusting ~~a focusing condition of an electron imaging system~~ a stage bias voltage of the electron beam inspection apparatus ~~based on a change in~~ in negative correspondence with the energy-filter cut-off voltage so as to maintain a focus of an electron image.

Claims 12-21. (canceled)

22. (new) The apparatus of claim 11, wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased when the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased when the energy-filter cut-off voltage increases.

23. (new) The apparatus of claim 11, wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased by a same voltage amount as the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased by a same voltage amount as the energy-filter cut-off voltage increases.